REMARKS

This amendment is responsive to the Examiner's Action of August 23, 2005.

Claims 1-3 and 5-17 were rejected under 35 USC 112. The claims are amended to eliminate indefiniteness and to indicate a relationship between the first flow path, second flow path, and the sample chamber. Any indefiniteness regarding the means to reunite first and second flow paths, has been eliminated by the present amendment.

Claims 1, 2, 3, and 5-17 were rejected under 35 USC 103 on Morton '863 in view of Burge '220. Submitted with the present amendment are explanatory Figures A, B, C and D, which relate to the remarks hereinafter set forth. Applicant's remarks relate to such rejection, and allowance of these claims is respectfully urged in view of the present amendment.

There are two primary techniques for the calibration of analytical sensors, calibration curves, etc.

A calibration curve is created by utilizing an analyte-free water and adding standards thereto. Typically, a three to five step calibration curve is utilized, a step being created by adding quantities of the analyte to the water. A three-step calibration curve is indicated in the attached drawing Figure A. It is typical for a calibration curve to pass through the origin.

An important feature of the calibration curve is that the calibration curve is constructed using blank water. Matrix matching may or may not be required for the calibration of an analytical sensor, matrix matching being a technique for the matching of ionic strength of the water (or other factor) with the ionic strength of the sample water.

The method of standard addition is typically utilized for analyses where matrix interferences are severe and calibration curves therefore cannot be used. The method or technique uses sample water, and adds the standards directly to the sample water. An example of a method for standard addition is shown in the attached Figure B, wherein the relation of a signal relative to a concentration of standard added to the sample, are indicated. The sample will not pass through the origin, unless the sample is devoid of analytes.

Morton discloses calibration using standard addition (col. 9, lines 34-37) for metals analysis. Morton provides no instrumentation for construction of a calibration curve (blank water, added standards to blank water, etc.). Thus, Morton is incapable of calibrating the instrument by producing a calibration curve. This is a quite significant difference between this reference and Applicants' claimed invention.

In the generation of a calibration curve, a blank may be prepared utilizing distilled, deionized or other water not containing the analyte of interest. In the analysis of many environmental organic contaminants utilizing deionized water as the blank water, in some situations, ehcmicals not containing the analyte of interest are added to the blank for matrix matching. This is particularly important in performing static headspace analyses.

Alternatively, blank water may be created by passing sample water through a canister of media selected to remove an analyte of interest. Examples of this technique would be passing water contaminated with volatile organic compounds (i.e. trichloroethene) through activated carbon, or the passage of water containing hexavalent chromium through granular ferric hydroxide.

There are many advantages to this technique including retaining the ionic strength and other chemical factors of the water while removing only the analyte of interest. This would be considered a form of matrix matching.

The canisters are not like the filters described in Morton which are for the removal of suspended particles. If sorptive media were placed in the filters of Morton, the analytes of interest would be retained by the canisters and therefore no a-alytes would ever be able to be introduced to analytical sensors, Morton not having dual-flow paths about such filters.

The blank water is utilized in the construction of a calibration curve by injecting standards into the blank water, and blank water is used to clean and rinse the analytical system. Sorptive media are used for creation of blank water by Applicants. Applicants' invention also uses the blank water to perform dilutions on samples, whereas the Morton reference does not disclose any such procedure to produce dilutions.

In the Morton reference, there are numerous references to pretreatment. The sample pretreatment 30 of Morton (see attached Figure D) is not at all a functional equivalent of the water treatment cartridge of Burge (see attached Figure C).

The Burge water treatment cartridge is for the generation of a blank utilized for the construction of the calibration curve, whereas the pretreatment of Morton is used in the initial steps of a separation process and/or analysis allowing the analyte of interest to be amenable to analysis. The Morton reference states that the reason for pretreatment of a sample is that voltage and current breaks complex metallic organic bonds, which may exist in the sample and otherwise go undetected by sensors in measuring cell 32 (col. 7, lines 17-20 of Morton).

Pretreatment is performed on both the samples and the standards prior to analysis. Figures 1-3 of Morton indicate that all water collected by the system <u>must</u> pass through the sample treatment 30. There is no alternative path around the sample pretreatment 30 to the measuring cell 32a or 32b. Therefore, it is clear that the sample pretreatment 30 <u>cannot at all be a functional equivalent of the sorptive media canister of Burge.</u>

If the sample pretreatment 30 removed the analyte, there would be nothing for the measuring cells 32a and 32b to measure.

The Examiner has indicated at page 4 of the Office Action that the metal is the analyte which is stripped from the water. Actually, if that were the true function of the sample pretreatment 30 that all the metal is removed, then no metal analyte would be available for analysis. If the Morton reference described a method for production of the blank, why does Morton state the use of standard addition for calibrating the measuring cell (col. 9, lines 33-37), instead of the construction of the calibration curve.

Morton describes (col. 8-9) a pretreatment (oxidation and reduction) of the samples for removal of interfering anions and organic compounds which may negatively impact the analysis. The sample pretreatment 30 is not being used as a method of creating a blank for calibration. In Morton, there is no flow path around the sample pretreatment 30. All water samples or standards are subject to the same pretreatment procedures.

The Morton reference has references to flow paths, which actually are for conduction of sample water to alternative analytical sensors (Fig. 3 of Morton, 20a, 20b,; col. 8, lines 28-34).

Burge does not at all disclose or claim diversion of the flow path to different sensors after collection of water.

The dual path of Burge is for the purpose of producing blank water for use in calibration standards, not providing pathways to alternative sensors. Burge allows sample water to be passed directly to the analytical chamber through the canister of sorptive media for the creation of the blank and addition of the standard. If all the water passed through the sorptive canister, then all analyte of interest for the samples would be removed and the method would be without merit.

The apparatus of Burge allows for creation of a calibration curve with matrix matching.

The Examiner appears to believe reuniting the flow paths is a trivial consideration. It is the primary method for allowing one monitoring unit to perform both the analysis of the samples and calibration. This is a very significant difference.

The flow paths of Morton are singular in design because all the water is passed through the same filters, sample pre-treatment, and into analytical chamber or chambers. If a sorptive media is placed anywhere along the flow paths of Morton,

no sample would be capable of analysis, because the water would be devoid of analyte. Morton allows for the calibration (col. 9, lines 34-37), but calibration is limited to the standard addition. The standard addition adds standards to samples. There are no methods presented by Morton for the calibration of the system, except for a mention of standard addition for the analysis of metals by an electrochemical method (col. 9, lines 34-37). There is no mention in Morton of how the organic, radiological, pH or other sensors were to be calibrated. There is no disclosure of dual paths for creation of blanks, or of reservoirs of blank water or other means for calibration. It can only be assumed that Morton does not believe these sensors require calibration.

Most analytical methods require frequent calibration or performance of quality control checks of the performance of the analytical instrument. The U.S. Environmental Protection Agency requires for all its approved analytical methods for analysis of water, soils and wastes that a mid-calibration check standard be performed each day, or after the analysis of ten samples. Morton provides few insights as to how these types of quality checks are to be performed for the analytical sensors (except metals) to be deployed in his system.

The Examiner states at page 5 of his Action "Regarding a means to reunite the two streams into single flow path, it would have been obvious to one versed in the art to modify Morton to allow for a sample flow to reunite with the water flow from the first path, thus to reduce the amount of waste water, this providing a more environmental friendly apparatus". Reuniting the flow paths does not reduce the volume of waste water produced or make it more environmentally friendly. It allows for creation of blank water and the construction of calibration curve, an essential component for ensuring the quality of data. The Examiner apparently mis-interpreted the reason for the dual flow path, which does not appear to be obvious. Morton made no provision for methods of calibration of numerous disclosed sensors because it is not obvious as to how to create, deliver and analyze standards in remote operations.

Based upon the Morton disclosure, it is obvious that none of the features, flow paths, filters, sample pretreatment, or any combination of such features, are capable of producing a blank water, or of generating standards necessary for construction of a calibration curve. Applicants' disclosure is not at all anticipated by Morton .

It is respectfully urged that all the claims presently in the application are allowable, and allowance is respectfully solicited.

It is respectfully urged that the foregoing is fully responsive to the Office Action of August 23, 2005. It is respectfully requested that a notice of allowance be issued.

If a telephone interview would be helpful in expediting prosecution, it would be appreciated if the Examiner would telephone Applicants' attorney at (626) 338-0100.

Respectfully submitted,

SCOTT R. BURGE, et al

By Boniard I. Brown

Boniard I. Brown
Registration #17,940
Attorney for Applicants